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(56) Documents Cited

GB 2288419 A EP 0370154 A1 US 4362424 A

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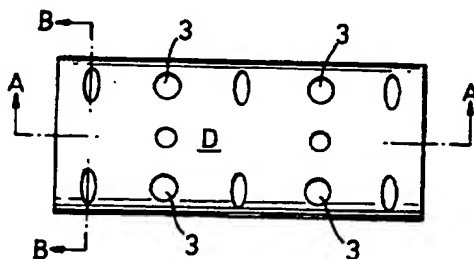
INT CL<sup>6</sup> E01F 9/00 9/047 13/00

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(54) Abstract Title

**Deflatable speed hump**

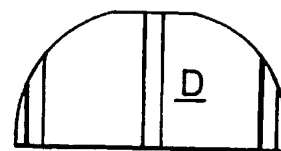
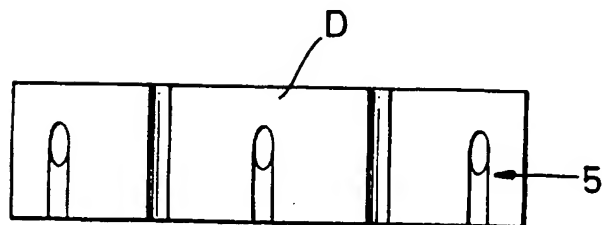
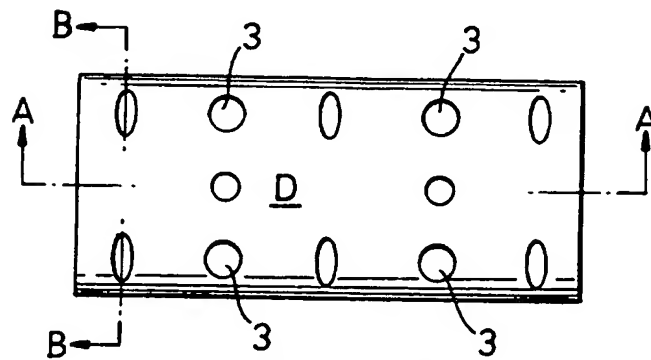
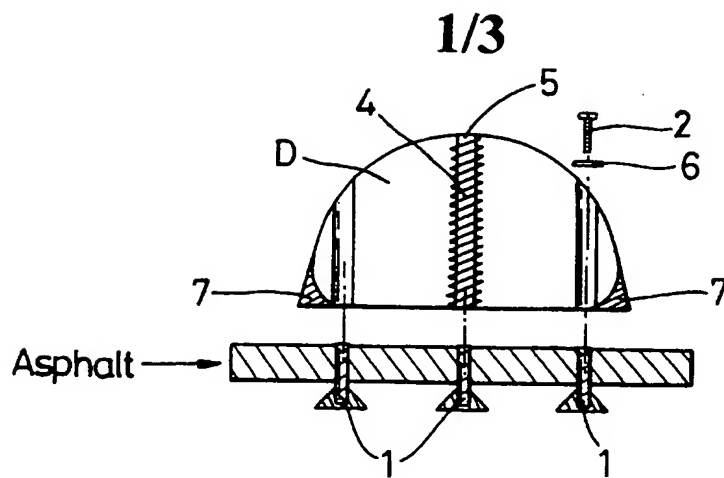
(57) A road traffic speed control device (D) which may be placed in a road, is produced from a resiliently deformable material, so that vehicles travelling within an intended speed limit cause the device (D) to deflate, minimising any inconvenience for road users. The device (D) may be produced from a extruded or compressed partially recyclable rubber compound, with perforations or apertures (3) within it to permit deflation. Valve means (13, fig. 5), in addition to or instead of the apertures (3), may be provided in the side walls to permit reinflation, and a helical spring (5, fig. 1) within the device (D) assists in the retention of the device's shape. The device (D) may be formed so that the reinflation of the device (D) is delayed until the rear wheels of a vehicle have also passed over it.



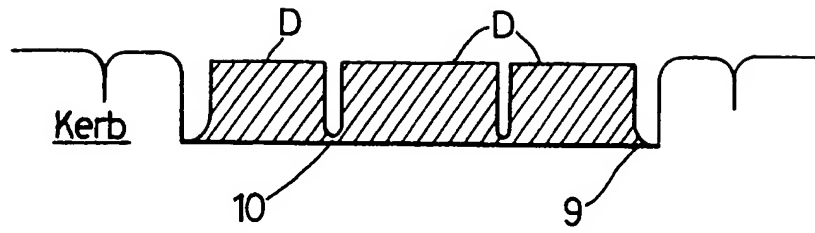
**Fig. 2**

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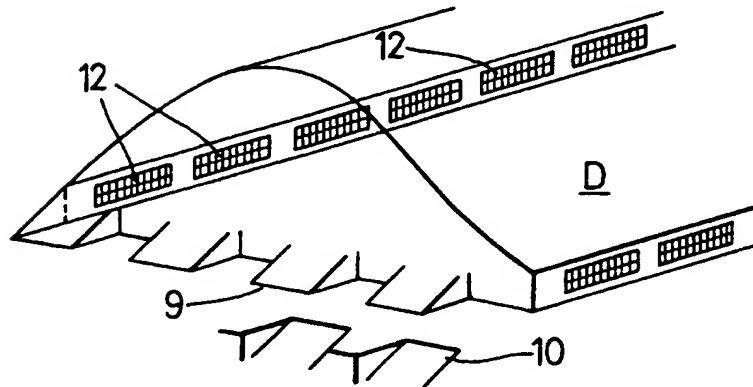
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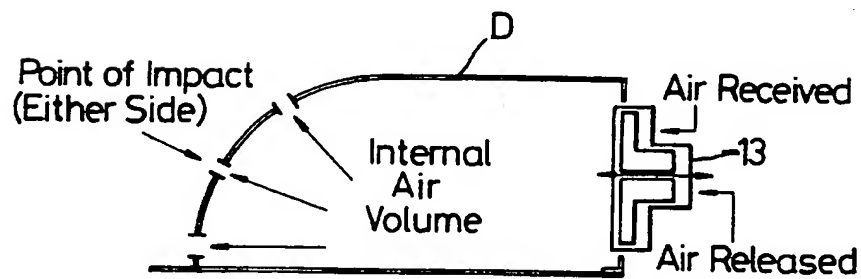
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**Fig. 3**



**Fig. 4**



**Fig. 5**

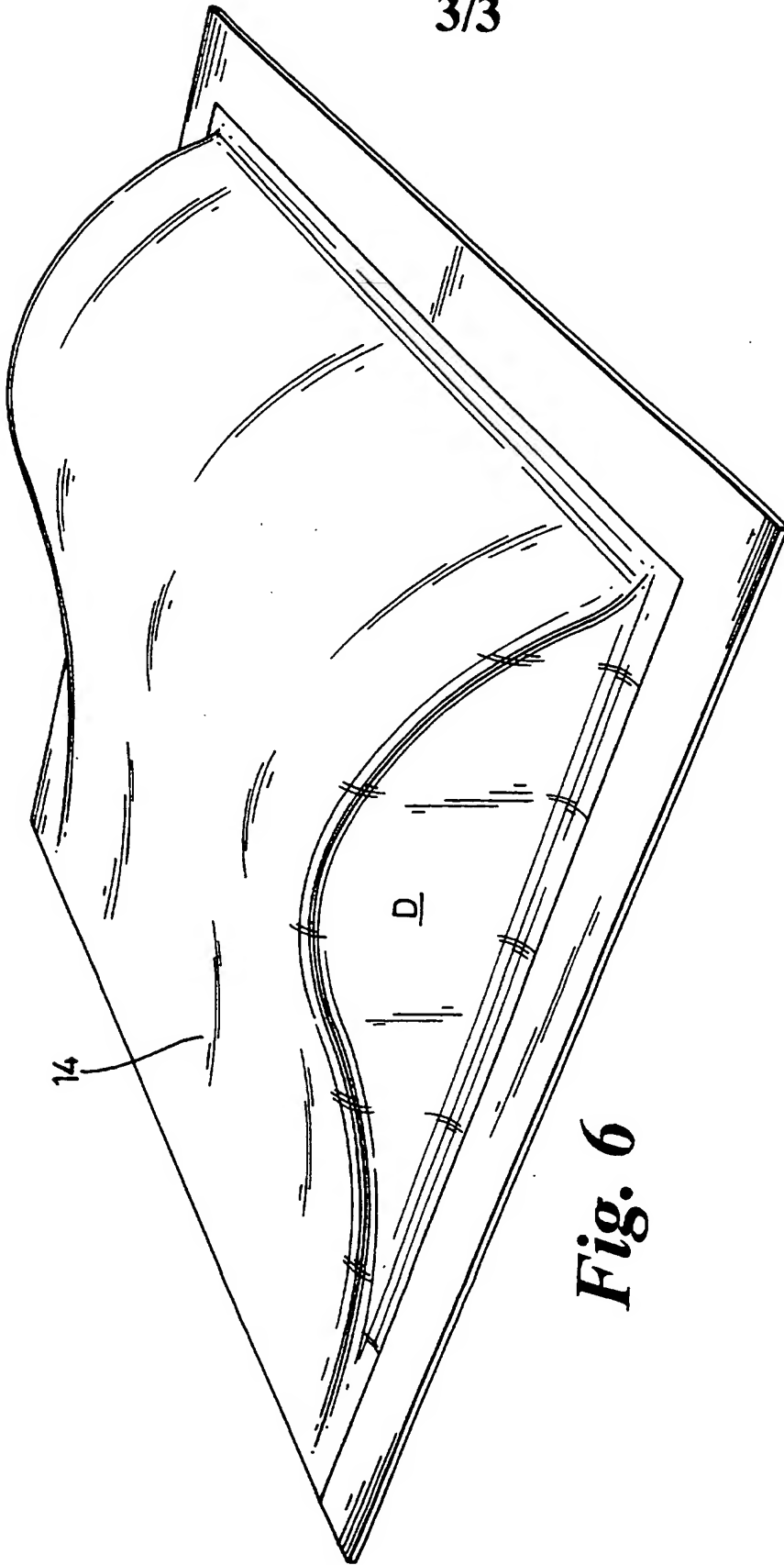


Fig. 6

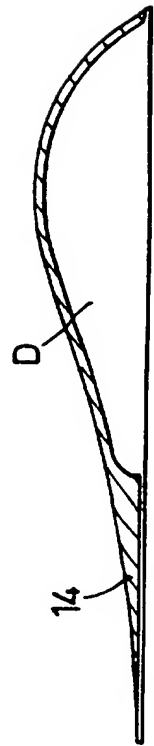


Fig. 7

IMPROVEMENTS RELATING TO ROAD TRAFFIC SPEEDCONTROL DEVICES

5       Speed humps or 'Sleeping Policeman' as they are  
better know, are well known deterrents for speeding  
motorists and are becoming more widely used through  
the traffic calming measures being imposed by local  
authorities. The present speed hump can be either  
10 an asphalt or block paviour mound, which are formed  
directly upon the existing road surface or as an  
alternative can be made from a solid compound such  
as plastic which again can be fitted to the road  
surface.

15

According to the authorities and surveys of  
public opinion it is essential to reduce the speed  
of motorist in general especially on inner city  
urban carriage ways. The present systems of speed  
20 control are costly and disruptive, with the tax  
payer and local businesses bearing the cost.  
Additionally the confusion caused to an already  
congested road network is totally unacceptable with  
journey times increasing and repairs to the roads  
25 never ending.

It is a object of the present invention to  
obviate or mitigate the above problems.

30       According to the invention there is provided a  
road traffic speed control device which is locatable

in a roadway, is formed of a resiliently deformable material and is deflatable by the passage of a vehicle thereover at the intended speed limit of said vehicle in said roadway, in use.

- 5       The device may be formed from an extruded or compressed partially recyclable rubber compound.

          The device may be generally semi-cylindrical or sinusoidal in transverse cross-section and may be formed with perforations or apertures therein to  
10 permit deflation.

          Alternatively or in addition, valve means may be located in a side wall of the device to allow deflation and reinflation, in use.

- One or more helical springs, which may be  
15 encased in a split sleeve, may be located within the device to assist in shape retention.

          The device may be formed with perforations, apertures or valve means to provide deflation thereof with passage thereover of a vehicle  
20 travelling from a minimum speed of 5 mph through increments to a required maximum.

          The device may be formed such that subsequent to deflation by the front wheels of a vehicle passing thereover, reinflation may be delayed to allow the  
25 rear wheels to pass thereover during such initial deflation.

The foregoing and further features of the invention may be more readily understood from the following description of preferred embodiments thereof, by way of example with reference to the accompanying drawings in which:-

Fig.1 shows a schematic end sectional view of a road traffic speed control device and fixing therefor;

Fig.2 shows a plan view of the device of Fig.1;

Figs 2A and 2B show sectional views along the lines A-A and B-B respectively of Fig, 2;

Fig.3 is a schematic sectional view of devices of Figs 1 and 2 located across a road;

Fig.4 is a schematic perspective view of a device showing drainage to discharge surface water;

Fig.5 is a schematic end sectional view of an alternative device including a two-way valve for controlling deflation and reinflation, in use;

Fig.6 is a perspective view from above of a further alternative embodiment, and

Fig.7 is a schematic side sectional view of the embodiment of Fig 7.

Referring now to the drawings a road traffic speed control device D is preferably formed from an extruded or compressed recyclable rubber compound. The shape represents a semi-cylindrical, sectional shape in construction with a series of apertures 3

formed through the profiled casing, which allows the circulation of air under controlled circumstances to be released, thus deflating the device D into a level plane giving a smooth passage to a vehicle passing  
5 thereover.

To assist in the shape retention a helical spring 4 encased in a suitable split sleeve 5 is installed at the centre of the device D. To secure the unit a spreader plate or washer 6 is inserted at  
10 the base of the protective shroud during the curing procedure to help relieve the impact force when in operation. Also to assist in the distribution of the impact forces, the device D is tapered into a fillet 7 at each end of the base line thereof.

15 The device D is preferably produced in 750 mm sections accompanied by tailor made inserts 8 to complete a road crossing (determined during the on site survey). To assist in the equal spacing of the device D a 50mm spacer 9 is moulded onto the end of  
20 the unit which is interlocked at 10 to provide an overall 05mm expansion gap giving added rigidity to the whole structure.

The device D is attached to a road surface by bolts 2 engaging into anchoring devices 1 located in  
25 the road surface.

The idea profile is 750mm in width and 100mm in height. This is uniform throughout the entire



structure which enables vehicle manufacturers to work to a stated height restriction from the top of the hump to the underside of the vehicle similar to the restriction placed on high sided vehicles.

- 5 Should damage occur, the section in question can be simply unbolted and replaced by a standard length of device causing minimal disruption and with no road excavation taking place

The number and size of apertures 3 is determined  
10 to allow the device D to be deflated by the front wheels of a vehicle passing thereover, providing the vehicle is not exceeding a predetermined speed.

Should the vehicle be travelling at a speed exceeding the predetermined maximum; the device does  
15 not deflate and acts substantially as a rigid hump.

Fig.3 shows a device D with drainage apertures 12 covered with mesh to prevent the ingress of leaves or other debris into device D.

Fig.5 shows an alternative device D having a  
20 two-way valve 13 provided to control deflation and reinflation and may be adjustable to control maximum speed at which deflation does not occur. Such valve 13 may be provided in addition to apertures 3 or as an alternative thereto.

25 Figures 6 and 7 show a further alternative embodiment in which the cross section of the device is generally sinusoidal so as to provide a

relatively smooth passage over a solid run up  
portion 14 of the device prior to a vehicle  
traversing the deflatable portion D.

The device provides a relatively smooth passage  
5 to vehicles travelling within a stipulated speed  
limit which is particularly important for emergency  
vehicles carrying injured passengers. Furthermore  
damaged portions of the device can be replaced  
easily without the requirement for excavation.

**CLAIMS:**

1. A road traffic speed control device which is locatable in a roadway, is formed of a resiliently deformable material and is deflatable by the passage of a vehicle thereover at the intended speed limit, in use.
2. A device as claimed in claim 1 formed from an extruded or compressed partially recyclable rubber compound.
3. A device as claimed in claim 1 or 2 which has a semi-cylindrical or generally sinusoidal transverse cross-section.
4. A device as claimed in any preceeding claim formed with perforations or apertures therein to permit deflation, in use.
5. A device as claimed in any preceeding claim including valve means located in a side wall of the device to allow deflation and reinflation, in use.
6. A device as claimed in any preceding claim wherein one or more helical springs are located within the device to assist in shape retention.
7. A device as claimed in any preceding claim wherein the device is formed with perforations, apertures or valve means to provide deflation thereof with passage thereover of a vehicle

travelling from a minimum speed of 5 mph through increments to a required maximum, in use.

8. A device as claimed in any preceeding claim wherein the device is formed such that subsequent  
5 to deflation by the front wheels of a vehicle passing thereover, reinflation may be delayed to allow the rear wheels to pass thereover during such initial deflation, in use.

9. A road traffic speed control device  
10 substantially as hereinbefore described with reference to the accompanying drawings.



Application No: GB 9805331.7  
Claims searched: 1-9

Examiner: Caroline Marshall  
Date of search: 12 August 1998

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:	
UK CI (Ed.P):	E1G (GLN)
Int CI (Ed.6):	E01F 9/00, 9/047, 13/00.
Other:	Online: WPI

**Documents considered to be relevant:**

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2 288 419 A (Beveridge) - see whole document, especially lines 4-25 of page 2 and figs. 3-5.	1 and 3
X	EP 0 370 154 A1 (Mareau) - see whole document, especially line 20 col. 6 to line 2 col. 7, and fig. 12.	1 and 3
X	US 4 362 424 (Barber) - see whole document, especially lines 36-55 of col. 1, and figs. 1-6.	1-5 and 7

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

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